# Vermilion Rockfish



## History of the Fishery

Vermilion rockfish (*Sebastes miniatus*), though highly desirable because of their brilliant color and the flaky texture of their flesh when cooked, are only of moderate importance in California's commercial and sport fisheries.

It is difficult to accurately determine what percent of the commercial catch is comprised of vermilion rockfish, because individuals in reported landings are often misidentified or combined with other red and orange-colored rockfishes in the market category of "rockfish, Group Red." From 1991 to 1993, vermilion rockfish landings were less than 2,000 pounds annually, statewide. This may be in part because, prior to 1994, there was no printed market category for vermilion rockfish on landing receipts; thus, they were only designated by species when fishermen added the category. Since 1994, "Rockfish, vermilion" has been a printed market category on landing receipts. From 1994 to 1999, pounds landed for both market categories progressively declined. During this period annual landings quotas became more restrictive. Commercial landing in the San Francisco area in 1994 and 1995 accounted for 59 percent of statewide landings. From 1996 through 1998, this percentage declined to 44, 28, and 17, respectively. From 1996 through 1998, the Eureka area reported the highest landings within the state (54 percent average for the three-year period).

Vermilion rockfish comprised less than two percent of all landed fishes observed on commercial passenger fishing vessels (CPFV) from Fort Bragg to Monterey from 1992 through 1995. During this same period, they constituted between six and eight percent of all landed fishes observed on CPFVs from Port San Luis and Morro Bay and averaged 14 inches in length. Along lightly fished areas of the central coast, fish of comparable size comprised eight percent of the total CPFV catch. Fish taken north of Monterey by CPFV anglers were slightly larger on average. In a survey of southern California CPFVs from 1985 through 1987, vermilion rockfish ranked third in species composition and represented eight percent of the total observed rockfish catch. Between 1983 and 1988, they ranged from two to five percent of the observed commercial catch of rockfish landed south of Point Conception.

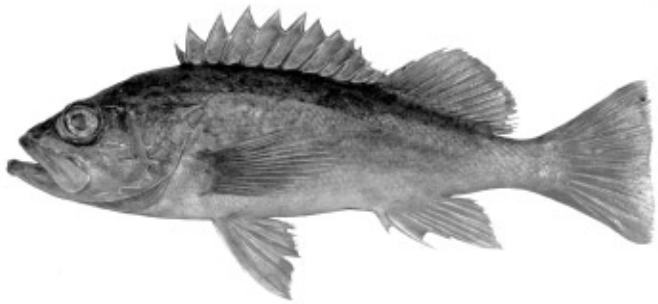
The average size of observed vermilion rockfish taken by recreational hook-and-line anglers fishing from Point Piños to Yankee Point in Monterey County, based on creel surveys at the Monterey Harbor, declined from 1981 to 1999. The average size was 18.8 inches in 1981, 16.1 inches in 1983, 15.5 inches in 1985, and 14.3 inches in 1987. In 1999, the average size rose to 15.5 inches.

Vermilion rockfish are marketed primarily in a fresh dressed form. Because the flesh has a short freezer life, it is rarely frozen. These rockfish are best when filleted, skinned, and deep-fried. They are also delicious when baked with vegetables in the oven or microwave. As with most other members of the family, the flesh is white, fine in texture, and mild in flavor.

## Status of Biological Knowledge

Vermilion rockfish are found from the San Benito Islands, Baja California, to Prince William Sound, Alaska, and occur over rocky bottoms from the shallow subtidal to 1,400 feet. Large fish are more common at depths greater than 100 feet due to the combined fishing pressure in shallower waters from commercial and recreational fishermen. Vermilion rockfish generally remain on the same reef system on which they settle during their first year. Tagging studies have shown no movement of fish at liberty for one to three years. Vermilion rockfish are extremely long-lived. A 20-inch individual weighing 5.4 pounds was aged, using surface aging, at 25 years. Lengths up to 30 inches have been reported. Vermilion rockfish have lengthy juvenile life stages. Fifty percent of the population is mature at eight years and these fish average 14 inches. The slow growth and long juvenile period make vermilion rockfish very susceptible to overfishing. Once large individuals are removed from a reef system they are replaced only by larval settlement.

Peak spawning months are September in central and northern California and November in southern California. The number of developing eggs increases from 63,000 in a fish 12.5 inches long to about 1.6 million in a 21.5-inch fish. Females are fertilized internally by males. In October of 1997, while conducting population scuba surveys of subtidal fishes in Point Lobos Ecological Reserve, Monterey County, California, several vermilion rockfish courtship displays were observed and videotaped by divers from California Department of Fish and Game. The absence of previously published description of vermilion rockfish mating or courtship may be due to the scarcity of mature individuals in habitat shallow enough to allow routine observations. Newly released larvae are free swimming and lead a pelagic existence for three to four months,



Vermilion Rockfish, *Sebastes miniatus*
Credit: DFG

mers and tend to be very secretive, often taking refuge in dense algae.

The pelagic young of vermilion rockfish feed primarily upon crustaceans, while adults feed on octopus, squid, and small fishes such as anchovies and blue lanternfish. At times, macroplanktonic organisms such as euphausiids, pelagic red crabs, and pyrosomes (pelagic colonial tunicates) are found in their stomachs.

## Status of the Population

In 1995, mean total length of observed vermilion rockfish taken during CPFV trips in central and northern California were consistently above the size of sexual maturation. Larger individuals and higher catch per-angler-hour were generally observed when fishing occurred in deep water and greater than 10 nautical miles from ports. Based on adjusted logbook data from San Simeon, Port San Luis, and Morro Bay, an estimated 23,000 vermilion rockfish were landed by CPFV anglers in 1995. This total is 2.7-fold higher than the combined estimate (8,530) from the remaining central and northern California ports.

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